10 and the right-side rotating body 15, based on the results of detection by the rotation detection sensors.

Yet further, in the embodiments as above, description has been made of the case where the left-side wheel rotation detection sensor 43 and the right-side wheel detection sensor 45 each composed of a rotary encoder or the like are used for detecting the rotations of the left-side wheel 3 and the right-side wheel 4. However, the present invention is not limited to such a case, and other various sensors may also be used inasmuch as the sensors can detect the rotations of the left-side wheel 3 and the right-side wheel 4.

Still further, in the embodiments as above, description has been made of the case where the three-axis acceleration sensor unit 32 is used as an orientation detection unit. However, the present invention is not limited to such a case, and other various sensors may also be used inasmuch as the sensors can detect the orientation of the ellipsoidal casing 2.

Still furthermore, in the embodiments as above, description has been made of the case where the present invention is applied to the music reproducing robot apparatus 1 operable as an input device. However, the present invention is not limited to such a case, and may be applied to other various input devices such as other robot apparatuses, remote controllers, mouse, etc. inasmuch as the input device is used in an arbitrary orientation. For example, where the main body can perform communication by radio or the like system, a microphone may be provided in the vicinity of each of the loudspeakers 14 and 19, whereby the music reproducing robot apparatus 1 can be used as an IP phone. In this case, by detecting the orientation of the main body, the output from the loudspeaker on the upper side nearer to the user's ears is turned ON, whereas the output from the loudspeaker on the lower side is turned OFF; contrary to the loudspeakers, the input through the microphone on the lower side nearer to the user's mouth is turned ON, whereas the input through the microphone on the upper side is turned OFF. Incidentally, in this case, a loudspeaker opening control may be applied only to the loudspeaker on the upper side so that the loudspeaker on the upper side is opened but the loudspeaker on the lower side is closed. By the above-mentioned control such as to generate a difference in the input or output mode between the upper side and the lower side through detecting the orientation of he main body, it is possible to impart directionality to the input or output. Incidentally, where the main body is provided with a display, it may be contemplated to detect the orientation of the main body, and to set longitudinal or transverse the presentation on the display. The present invention is particularly effective when applied to other various input or output devices such as other robot apparatuses, remote controllers, mouse, etc. in which different processings are applied to input or output units in the case where a main body is provided with input or output units arranged in symmetry.

Yet furthermore, in the embodiments as above, description has been made of the case where the control unit 30 executes the command assigning processings on a software basis, according to a program installed in the music reproducing robot apparatus 1. However, the present invention is not limited to such a case. For example, a configuration may be adopted in which the music reproducing robot apparatus 1 is provided with a circuitry for executing these processings, and the processings are executed by the circuitry on a hardware basis. Besides, a configuration may be adopted in which a program for executing the command assigning processings is stored on a recording medium such as a CD.

It should be understood by those skilled in the art that various modifications, combinations, sub-combinations and alterations may occur depending on design requirements and other factors insofar as they are within the scope of the appended claims or the equivalents thereof.

What is claimed is:

1. An input device comprising:
- an ellipsoidal symmetrical shaped casing designed to fit in a user's hand;
- an input unit provided in said casing, the input unit activatable by a particular movement of a user to generate a function of the input device according to an assigned command;
- an orientation detection unit configured to detect the gravitational orientation of said casing; and
- a command assigning unit configured to assign commands to inputs from said input unit based on the results of detection by said orientation detection unit, the commands including a first command associated with the first function of the input device and a second command associated with a second function of the input device, wherein different detected gravitation orientations of said casing cause different ones of the first and second commands to be assigned to said input unit activatable by the particular movement of the user.

2. The input device as set forth in claim 1, wherein
- two input units are provided at different positions of said casing; and
- said command assigning unit is configured to assign a first command to the input from said input unit on the upper side opposite to the side of said orientation of gravity and to assign a second command to the input from said input unit on the lower side coinciding with the side of said orientation of gravity, based on the results of detection by said orientation detection unit.

3. The input device as set forth in claim 1, wherein
- said input unit includes two wheels rotatably mounted at different positions of said casing, and
- said command assigning unit is configured to assign a first command to an input made by operating said wheel on the upper side opposite to the side of said orientation of gravity and to assign a second command to an input made by operating said wheel on the lower side coinciding with the side of said orientation of gravity, based on the results of detection by said orientation detection unit.

4. The input device as set forth in claim 1, wherein
- said symmetrical shape is shaped symmetrically on the left and right sides, shaped symmetrically on the upper and lower sides, or shaped symmetrically on the upper and lower sides and on the left and right sides.

5. The input device as set forth in claim 2, wherein
- said two input units are provided at positions equidistant from the center of said casing.

6. The input device as set forth in claim 1, wherein
- said command is a reproduction control command for controlling reproduction of musical data.

7. The input device of claim 1, wherein the input device further comprises an output device, wherein the output device comprises:
- an output unit provided in said casing;
- an output mode setting unit configured to set an output mode for an output from said output unit, based on the results of detection by said orientation detection unit; and
- a control unit configured to control said output unit so as to output based on said output mode set by said output mode setting unit.

8. The device as set forth in claim 7, wherein
- a plurality of output units are provided at different positions of said casing; and